Precision Timing-Based System for Color Inference in Synthetic Conical Protein-Based Photovoltaic Image Sensors

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Introduction

Yet another potential application for compact precision timing systems such as Optical-Atomic Stable Isotope Chronometers lies in enabling a new type of opto-electronic photography which would ordinarily provide maximally efficient monochromatic photographic capability to capture color images at resolution equal to images captured in a monochromatic mode.

The system described in the proceeding description synergizes elements of natural photosynthesis as well as biological eyesight and fuses these separate but useful phenomena by way of double-measurement of light waves, wave path control and compact precision timing as the bridge connecting these disparate natural processes in order to create a maximally compact system for image capture which may be easier to implement than the proposal of 11 April 2024.

Abstract

Borrowing from this author's previous publication of 26 November 2023, this system will begin with initial measurement of light waves using a translucent measurement layer positioned behind a standard focal lens. This approach requires that light waves be measured twice without distorting the light waves in the process of taking the initial measurement.

From this initial measurement which has as its most important element conferring to the measurement system information concerning the arrival time of a wave of light in a given region of the overall mechanism.

Behind this mechanism is a system for channeling waves of light so that each wave strikes a series of synthetic protein-based cones; the narrow ends of which face forward; as directly as possible. This is to say that each wave of light must arrive at the cone with the central part of the wave (halfway between crests in phase) precisely striking the tip of the cones like a bullet striking the tip of a needle and draping itself over the needle. Each cone would consist of a single helix which wraps around a substrate ranging from ~10-18nm in width and which is subjected to a permanent physical compressive force brought about by immersion in a transparent gel which contracts in response to heat during the process of manufacture. This compression brings the aligned electrons in the synthetic protein closer together, amplifying photovoltaic effects by creating broader zones of positive charge and increasing the likelihood of magnetic capture of photons by electrons of the protein and thus, slowing the light sufficiently to ensure conversion into an electron as the light passes through the Higgs Field.

Just as in this author's publication concerning artificial photosynthesis systems of absolute efficiency (it should be readily achievable to use helical structures to convert photons to electrons on a one-for-one basis) each photon striking the cones would be converted and not a single photon lost. Behind the cones would be an electron counter coupled with a precision timing mechanism capable of comparing the arrival time of the photons in the translucent sensor layer with the arrival times of matching patterns of electrons at the electron counter.

As the photons striking the cones would convert into electrons exclusively at the crests of phase whereat spin is null, *the phase height of the light waves would, provided a predictable strike orientation against the cones, dictate the physical point along the cones at which photon-to-electron conversion would occur.*

Because electrons travel at about one tenth of the velocity of photons, this would measurably and predictably affect the arrival times of the corresponding electrons at the electron counter. *Because phase height is directly proportional to wavelength, we may infer the wavelength/frequency values of light through measurement of the disparity between the arrival times of the electrons at the rear detector relative to the time of initial entry of the photons into the mechanism.* This can be metaphorically understood by comparison to the inference of the diameter of a tablecloth by ensuring it is symmetrically placed upon the table and then measuring only the portion of the tablecloth which overhangs the edge of the table. If a table is round and is one meter in diameter and a tablecloth hangs over the edge by ten centimeters, the diameter of the tablecloth must be 1.2 meters.

In the case of our sensor, the outer limits of phase movement are like the edges of the tablecloth and the sharp end of the cone is like the table. If electrons generated by interaction with the photovoltaic cones are only slightly slowed, we can infer that their wavelength was longer and that conversion occurred near the back of the cone at the wider part. If the electrons are more dilatory, we can infer that conversion occurred earlier and that the particles spent a greater proportion of their time as electrons.

Conclusion

Although this mechanism would require fine control over light in terms of its angular momentum within a prism and would require a primary translucent sensor layer as well as a reasonably powerful computer to make sense of the data (each ~18 nm node would require two precision timing measurements to be made and a subtraction operation to be performed,) provided sufficient processing power and a precision clock, it should be possible to build such a mechanism provided that the needed type of photovoltaic cones may be fabricated.

This system would have as one of its many advantages that no current needs to be introduced to the conical sensors as in a CCD or CMOS. Such a system would be free of the degree of sensor noise associated with CCD and CMOS sensors for this reason. Brightness, of course, would be assessed simply by counting electrons.